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EPR and optical spectroscopy of the Yb3+ cubic center in ß-PbF2

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Abstract

Optical spectroscopy and EPR are employed to study a ß-PbF2 crystal doped with Yb3+ ions. The presence of only one paramagnetic center, the Yb3+ ion with cubic symmetry, is established. Its optical lines are identified, the empirical system of energy levels is constructed, and the phenomenological crystal field potential is determined. The information on the phonon spectrum of the ß-PbF2 crystal is obtained from the electron-vibrational structure of the optical absorption and luminescence spectra. © 2001 MAIK "Nauka/Interperiodica".